



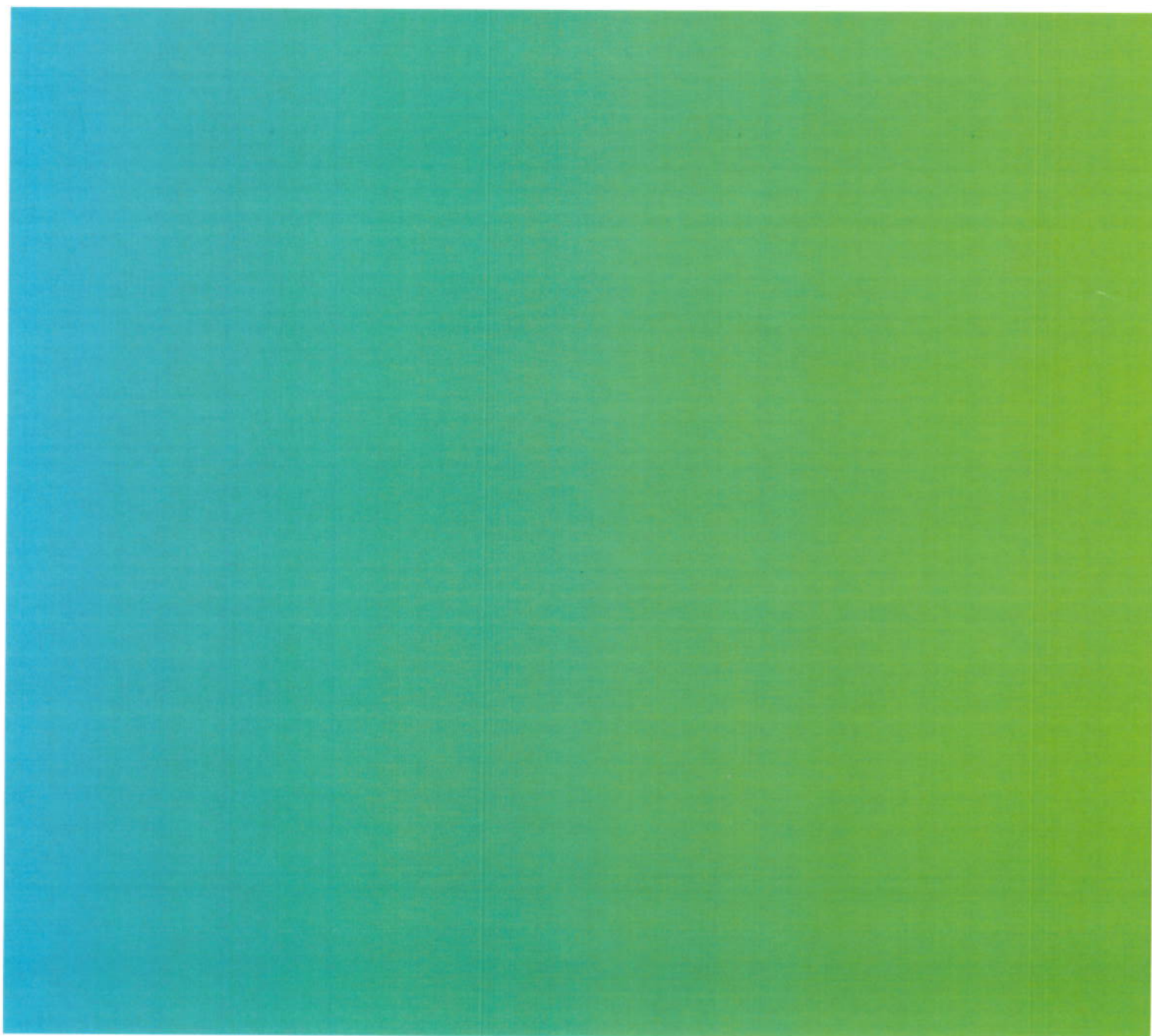
Environment

Prepared for:  
USEPA Region 1  
5 Post Office Square, Suite 100  
(OSRR07-2)  
Boston, MA 02109-3912

Prepared by:  
AECOM  
Rocky Hill CT  
60148468  
July 10, 2012

# Building Materials Remedial Action Plan

South Water Pump Station  
Greenwich, CT





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Greenwich, CT

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Prepared By: Mary Beth Hayes

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Reviewed By: Malcolm A. Beeler

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Technical Advisory Review by: Chris Carleo

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## 1.0 Introduction

This Remedial Action Plan (RAP) has been developed for the remediation of polychlorinated biphenyls (PCBs) found in paint in the South Water Pump Station, located at 142 South Water Street in Greenwich, Connecticut. The pump station is also known as the Byram Sewage Pumping Station.

PCBs have been detected in paint at concentrations regulated under the applicable federal regulations in 40 CFR Part 761 and Connecticut state regulations under Section 22a-463 through 469, inclusive, of the Regulations of Connecticut State Agencies. Specifically, paint with total PCB concentrations equal to or greater than 50 milligram per kilogram ( $\geq 50$  mg/kg) that are classified as PCB Bulk Product Waste have been identified. This RAP has been developed to address PCB-containing materials in accordance with the governing federal regulations under §761.62 and the governing state regulations.

Mechanical upgrades to the pump station systems are scheduled for initiation during the summer 2012. The PCB abatement proposed in this RAP will be conducted concurrently with the station upgrade. Paint will be removed until all visual remnants have been removed and the remaining concrete structure that was in contact with the paint will be tested to determine the PCB concentrations remaining. If PCBs are found in concrete at concentrations  $>1$  mg/kg, a long-term maintenance and monitoring program will be implemented following the abatement activities.

### 1.1 Site Description

The South Water Pump Station is located at 142 South Water Street in Greenwich, Connecticut, which is approximately 73.34 degrees west longitude and 41.04 degrees north latitude. A Site Location Map is provided as **Figure 1** and a site plan indicating the station layout and sample locations is provided as **Figure 2**.

The pump station property is owned by the Town of Greenwich and was constructed in 1963. The pump station has one-floor above grade and a basement. The basement level is constructed of concrete and the above grade portion consists of brick exterior walls and concrete masonry unit (CMU) interior walls with a flat roof. The footprint of the building is approximately 700 square feet (sq ft), representing an area of 30 feet by 23.25 feet. The building basement is divided approximately equally into a wet well room and a pump room but only the pump room is painted and the wet well will not be discussed further. The first floor contains a motor room and a former chlorinator room (from previous use as wastewater treatment facility) where control and monitoring panels are currently located. The property also houses a Town of Greenwich Department of Public Works garage facility for the Highway Division and is bounded on the west by the Byram River, commercial properties to the north and south, and residences on the east.

The pump station is a low-occupancy area as no daily or routine tasks are performed within the structure. Site workers only access the building to perform corrective measures if monitoring equipment indicates a failure of the pump system or to perform maintenance on equipment. Protective measures for workers have already been implemented including

hazard communication, hazard labeling, and the use of appropriate personal protective equipment.

## 1.2 Conceptual Site Model

Paints were applied historically to the interior ceiling and wall surfaces of the South Water Pump Station. Based on the time frame of the building construction, it is likely that paint was applied during the timeframe when PCBs were used in paint manufacture. There are no other known sources of PCBs at the site that could have served as a source of the PCBs identified in the paint. Based on the testing performed, the paint on the interior of the structure has been determined to be a PCB Bulk Product Waste. Under 40 CFR Part 761, the use of PCBs is only allowed in a *totally enclosed manner*, which means any manner that will ensure no exposure of human beings or the environment to any concentration of PCBs. Because continued use of an "open system" is not authorized under the federal or state regulations, removal of the PCB-containing paint is required.

It has not yet been determined if PCBs have migrated into the concrete building materials to which they have been applied. Following removal of the paint the underlying building materials will be tested to determine if they are impacted by PCBs.

## 1.3 Investigation Program

Prior to the planned upgrades to the pump station, a sampling program for materials such as asbestos, lead and PCB-containing paints was performed to determine the potential for regulated building materials. Sample results indicated the presence of these materials and therefore additional investigation was performed in 2012.

A yellow surface paint is currently found on all of the CMU and concrete interior walls and ceilings in this structure. The yellow surface paint is not believed to be original to construction of the facility. The yellow surface paint was removed at four locations to determine if different colored paints were found beneath this surface coat and a tan-colored paint was found beneath the yellow paint at all locations.

A total of five paint chip samples were collected from the station and analyzed using EPA Methods 3540C/8082. Three samples were collected of wall paint, one sample was collected of piping paint, and one sample was collected of ceiling paint.

An initial paint chip sample was collected from the west wall of the first floor electrical room on October 3, 2010, by Malcolm Pirnie, Inc., on October 3, 2010. The sample was analyzed by EMSL Analytical Laboratory of Westmont, New Jersey. Four paint chip samples were collected on March 29, 2012 by AECOM which were analyzed by Spectrum Analytical, Inc. of Agawam, Massachusetts. All five paint chip samples contained >50 mg/kg PCBs. The concentration of PCBs detected in these samples ranged from 267 to 20,000 mg/Kg total PCBs. Aroclor 1254 was the only Aroclor detected in four of the five samples. One sample contained Aroclor 1254 and 1260. Table 1 presents the analytical results and Figure 2 indicates the sample locations. Analytical data reports are included in Appendix A.

As mentioned above, a sample of blue paint found on piping contained >50 ppm PCBs. As part of the system upgrade, all piping is to be removed from the pump station and new replacement piping will be installed.



#### 1.4 PCB Remedial Goals

The remedial goals for PCBs are as follows:

- Remove all PCB Bulk Product Waste paint until no visual remnants remain; and
- Perform characterization sampling (chip sampling) to determine the in-situ PCB concentration in the remaining concrete that was in contact with the paint.

If any of the concrete is determined to be a PCB Remediation Waste (e.g., contains >1 ppm PCBs):

- The PCB Remediation Waste concrete will be repainted with two coats of contrasting color paint;
- A long-term maintenance and monitoring program will be implemented as described in Section 2.3 of this RAP;
- Concentration of PCBs in the concrete will be recorded in land records; and
- A PCB M<sub>L</sub> mark will be placed on the entrance door to the pump station.

#### 1.5 PCB Remediation Description

All paint that is PCB Bulk Product Waste (> 50 ppm PCBs) will be removed by either chemical or physical means. The remedial standard is to be removal until no visual remnants remain. Paint removal will be conducted in conjunction with the pump station upgrade activities. In total, PCB Bulk Product Waste paint will be removed from approximately 5,400 square feet of painted surfaces (walls and ceilings). Releases of PCBs during abatement activities will be minimized through the use of engineered controls (further described in Section 2.1).

The PCB Bulk Product Waste paint and other waste materials generated by paint removal activities will be containerized in appropriate containers that will be covered or sealed when not in use. Containers will be properly labeled to indicate that the wastes contain PCBs.

#### 1.6 Notification and Certification

This RAP serves as the Notification for PCB Remediation Activities. After having received written approval from EPA (the Approval), the Owner will notify EPA a minimum of 24 hours in advance before performing this remediation work and it will be performed as described in this Notification. However, if conditions in the Approval are more stringent than those described within this Notification, the procedures specified in the Approval shall be followed.

Attached in **Appendix B** is written certification from the Town of Greenwich Department of Public Works, as required under §761.61(a)(3)(E). The certification confirms the storage location for all reports detailing sample collection and analysis procedures used to assess or characterize PCBs at the pump station, waste handling procedures and disposal information for materials remediated under this Notification, and that these records are available for EPA inspection.

### **1.7 Recording on Land Records**

If PCBs are identified in the concrete and CMU structures to remain following PCB abatement, their presence will be recorded on the land records. The information will be recorded on documents commonly reviewed during property transfers.

### **1.8 Remediation Schedule**

The pump station upgrade is planned to initiate in the summer of 2012 with a proposed construction duration of approximately one-year. The PCB abatement work will be done concurrently with the upgrade construction activities. This is necessary because some painted areas at the pump station are located behind control panels and other utility-related structures. These areas will only be accessible upon removal of these structures and prior to their replacement. It should be noted that this is active pumping station that will continue to be in use throughout the duration of the upgrade and remediation program and operations cannot be terminated at any time during the project. The schedule and implementation will be performed such that the active function of the station is maintained at all times.



## 2.0 Planned Remediation Procedures

Remediation is planned for PCB Bulk Product Waste identified at the pump station (PCB-containing paint on interior walls and ceiling). The following is a discussion of the remedial procedures to be employed for this material.

### 2.1 Paint Removal

Paint will be removed using chemical and/or physical means to achieve a visual standard (e.g., no visual remnants of paint). Paint from all interior wall and ceiling surfaces throughout the pump station will be removed. The estimated surface area is approximately 5,400 square feet.

The Town of Greenwich will hire a Contractor to perform the paint removal work. The means and methods of the paint removal are to be determined by the Contractor. The Contractor shall be responsible for submitting a Contractor's Work Plan to EPA prior to commencing PCB abatement activities. This work plan shall detail means and methods to remove paint, engineered controls to prevent releases and protect clean surfaces, and any corrective measures to be implemented in the case that engineered controls are determined to have failed. The work plan shall also describe monitoring to be performed during abatement activities.

A monitoring program to be implemented inside of the building will be designed by the Contractor to conform to Occupational Safety and Health Administration guidelines. Engineered controls will be developed by the Contractor, depending upon the removal method selected, to be protective of human health and the environment.

Air monitoring will also be performed to be protective of site workers and the surrounding community. At a minimum, critical barriers will be installed on ventilation structures such as windows and louvers to prevent releases outside the building. Within the structure, unpainted floors and equipment will be covered with polyethylene sheeting to prevent potentially PCB-impacted dust or other materials from collecting on these clean surfaces.

Dust monitoring will be performed outside the structure, at a location where dust would release from the structure in the event of a failure of a critical barrier, during any dust-generating activities associated with the paint removal.

### 2.2 Characterization Sampling Procedures

The concrete remaining after all paint has been removed to a visual standard will be sampled to determine the concentrations of PCBs remaining at the facility. Samples will be collected and analyzed in accordance with EPA's *Standard Operating Procedure for Sampling Porous Surfaces for Polychlorinated Biphenyls (PCB)*, dated May 23, 2011. A total of six samples, three of structural concrete in the basement and three of CMUs in the first floor, will be collected. All samples will be extracted and analyzed using EPA Methods 3540C and 8082 to determine total PCBs.

### 2.3 PCB Remediation Waste Marking

If any of the CMU characterization samples are found to contain >1 mg/kg total PCBs, the walls and ceilings of the first floor of the pump station will be painted with two coats of contrasting-color paint in accordance with the requirements of 40 CFR 761.30(p)(1)(iii)(A)(1). The same procedures will be followed for the basement of the structure if any of the concrete characterization samples contain >1 mg/kg total PCBs.

An M<sub>L</sub> mark will be placed on the single entrance door to the facility to alert anyone present in the pump station of the presence of PCBs. Site workers shall be notified of the presence of PCBs in the structure.

### 2.4 Maintenance and Monitoring

A long-term maintenance and monitoring plan (MMP) will be developed and implemented at the pump station. The MMP will include the following components:

- Conduct an annual inspection to evaluate the condition of the paint and corrective actions to be performed in the case that paint is found to be worn;
- Removal and testing of any flaking paint, corrective actions to be performed to replace flaking paint, characterization requirements for the paint flakes collected, and instructions for proper disposal of the paint flakes based upon the characterization data.
- Collection of six hexane wipe samples on an annual basis. If PCBs are detected at greater than 100 ug/100 cm<sup>2</sup>, corrective measures will be employed. At a minimum these corrective measures will include repainting and retesting of surfaces.

### 2.5 Equipment Decontamination

Non-porous surfaces on equipment, tools, and machinery that contact PCB wastes will be decontaminated prior to leaving the site or being used in the handling of clean materials. Decontamination will be done using the procedures as defined in §761.79(c)(2). Specifically, equipment, tools and machinery that are visually clean will be swabbed with solvent solution containing d-limonene. Grimy non-porous surfaces will be decontaminated following the double wash/rinse procedures specified in §761.375.

Decontamination liquids will be drummed and tested for appropriate disposal. All aqueous liquids containing 0.5 µg/L or greater total PCBs shall be shipped for treatment to an appropriately permitted facility, either the Clean Harbors facility in Bristol, CT or the United Oil facility in Bridgeport, CT. In the event that determined PCB concentrations in the decontamination liquids exceed the permit levels for these facilities, the aqueous wastes will be shipped to an appropriate disposal facility such as the Veolia Incinerator in Port Arthur, Texas. Decontamination solids (e.g., rags, brushes) will be containerized with the PCB wastes for disposal.

### 2.6 Waste Handling, Storage and Disposal

The means and methods for removal have not yet been determined. If the method for removal selected by the contractor involves physical removal methods (e.g., scraping,



scarification or sandblasting) all wastes will be solids and handled as described below. If paint stripping is selected then the wastes generated during paint removal will be liquid and shall be handled and disposed as described below.

All personal protective equipment (PPE) used during remediation shall be containerized as solid PCB wastes for disposal. PPE used during decontamination of equipment, tools, and machinery, as described in Section 2.5, shall also be containerized as solid PCB wastes for disposal.

Solid wastes generated during paint removal activities shall be placed directly into a lined storage container or a DOT-rated 55-gallon drum. Liquid wastes shall also be containerized in a DOT-rated 55-gallon drum. Upon first use of a storage container, an M<sub>L</sub> mark shall be placed on the container and the date of storage will be recorded on the container by the field inspector. All waste storage containers shall be removed from the site within 30 days of their first use.

A waste storage area shall be created for the storage of the waste containers prior to their transport offsite. The waste storage area will be surrounded by temporary fencing and the fence shall have an M<sub>L</sub> mark indicating the presence of PCB wastes. All lined storage containers or drums not actively in use shall be staged within the waste storage area and covered with a tarp or otherwise sealed to prevent storm water from entering the container.

It is estimated that approximately four cubic yards of PCB-containing paint debris will be generated and disposed of during paint removal activities. Solid PCB wastes generated during the removal of paint from the pump station will be disposed of at a non-hazardous landfill meeting the requirements of §761.62. The Contractor shall submit the landfill to be used for disposal in the Contractor's work plan to be submitted to EPA under the conditions of the Approval. Organic liquid PCB wastes will be sent to an incinerator and aqueous liquid wastes will be sent to a decontamination facility. Appropriate waste facilities for liquids are listed in Section 2.5.

Any spills or releases of PCB-contaminated materials will be remediated by the Contractor as per the requirements of Subpart G. Notification to regulatory authorities under the requirements of Subpart G, if required, will be the responsibility of the Contractor.

## **2.7 Air Monitoring**

Air monitoring will be performed to be protective of site workers and other site users, in accordance with the facility-specific health and safety plan. Exposure limits established by the Occupational Safety and Health Administration (OSHA) will be used to protect site workers, specifically, the Permissible Exposure Limit (PEL).



### **3.0 Remediation Documentation**

Documentation of the field remediation activities will be performed on a daily basis by the environmental contractor and a field inspector during the performance of the remedial measures. The field inspector will be responsible for completing the documentation described below. A Remedial Action Report (RAR) will be completed after the conclusion of the paint removal and abatement program. The RAR will summarize the remedial activities.

#### **3.1 Field Notes**

The field inspector will maintain a daily log of on-site activities. That log will include, but not be limited to the following.

- Health and safety meetings
- Personnel and equipment on site
- Field procedures and observations
- Paint removal progress
- Sample locations with selection criteria, samples collected, analyses performed, sample handling
- Telephone or other instructions
- Health and Safety issues
- Health and Safety monitoring data
- Estimate of wastes generated and stored and waste handling and storage procedures
- Waste transporter information

#### **3.2 Photographs**

Daily photographs will be taken of representative activities, such as paint removal, decontamination, sampling, and waste handling and storage. Copies of selected photographs with appropriate captions will be included in the RAR.

#### **3.3 Transport and Treatment/Disposal Certifications**

Manifests and/or Bills of Lading for the transportation, treatment and disposal of waste materials and certifications of the disposal of the wastes, if necessary, will be obtained from the transporter and from the treatment/disposal facility. Copies of these forms will be included in the RAR and records will be maintained in accordance with the requirements as specified in 40 CFR 761 Subpart K (PCB Waste Disposal Records and Reports).

### **3.4 Remedial Action Report**

The Remedial Action Report (RAR) will be prepared upon completion of all remedial activities. The RAR will include, at a minimum, the following.

- Site description
- A description of field procedures
- Verification sample locations and analytical results
- A photographic record of the field activities
- Dust monitoring data
- Waste transport and disposal information including tonnage sent to each facility
- Copies of waste manifests, bills of lading, and certificates of disposal

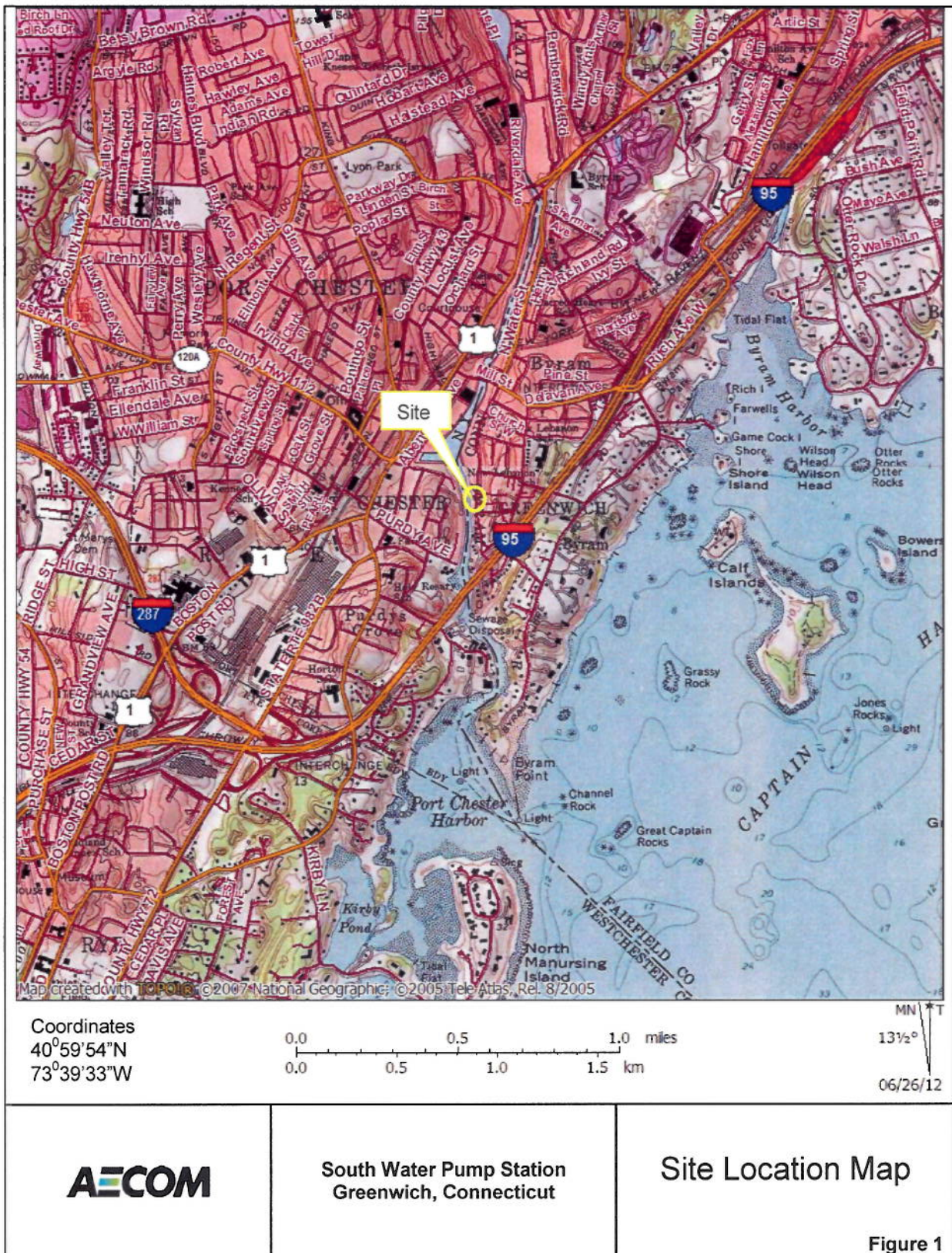
Any additional information required under the EPA Approval shall also be incorporated into the RAR. The report will be submitted to the EPA within 60 days of completion of remedial activities.

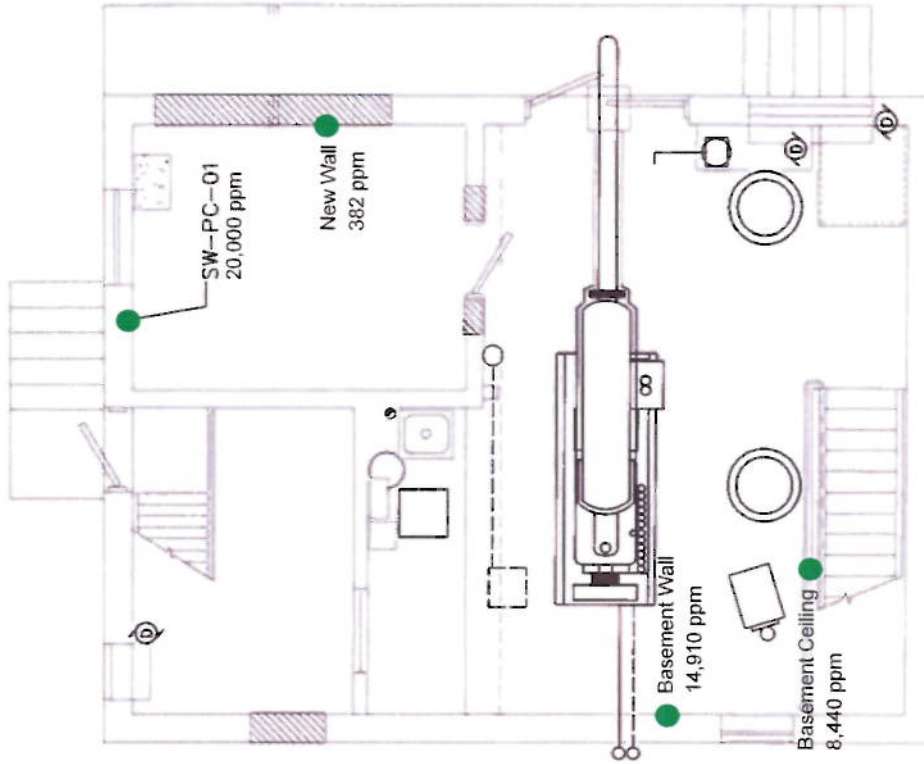
## Table



<p><b>Table 1</b></p> <p><b>Paint Sample PCB Analytical Results</b></p> <p><b>Town of Greenwich South Water Pump Station, Greenwich, Connecticut</b></p>			
Sample Date	Material Description	Sample Location	Total PCBs (mg/kg)
10-3-2010	Yellow paint, block wall	1 <sup>st</sup> Floor electrical room – west wall south of window	20,000
3-29-2012	Yellow paint, new wall	1 <sup>st</sup> Floor electrical room – north wall	382
3-29-2012	Yellow paint, Basement wall	Basement under stairwell, south wall	14,910
3-29-2012	Blue paint, piping	Basement level piping	267
3-29-2012	Yellow paint, basement ceiling	Basement ceiling, east side	8,440
<p><i>Note: Samples in bold are likely to be regulated under state regulations (RCSA 22a-463 through -469, inclusive). Samples that are shaded are regulated under federal regulations (40 CFR Part 761).</i></p>			







FLOOR PLAN

- Notes:
- Sample Location
  - 32 Result is concentration of PCBs in ppm


ALCOLM  
PIRNE

DEPARTMENT OF PUBLIC WORKS  
TOWN OF GREENWICH, CONNECTICUT  
**GREENWICH PUMP STATION  
REHABILITATIONS**  
CONTRACT: 5315 TOWN PROJECT 10-5315

**PANT CHIP SAMPLE LOCATIONS**  
Figure 2

DATE: NOVEMBER 2010  
HAZ. MEET. 15 OF 18  
JOB REF. NO. 5983-001



	 A photograph of an industrial control room. On the left is a large, grey metal control panel with numerous buttons, switches, and a red emergency stop cord. A person's arm and hand are visible in the foreground, reaching towards the panel. In the background, there is a window looking out onto a bright outdoor area. The walls are a light color, and there are some electrical conduits and pipes visible.	<p><b>Photograph #7</b></p> <p><b><u>Description of Photograph:</u></b> South Water PS – Yellow paint on block wall with PCB concentration of 20,000 ppm.</p>
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## **Appendix A**

### **Analytical Data Reports**

Report Date:  
16-Apr-12 10:34



SPECTRUM ANALYTICAL, INC.

Featuring

HANIBAL TECHNOLOGY

### Laboratory Report

- ☒ Final Report  
☐ Re-Issued Report  
☐ Revised Report

AECOM Environment  
500 Enterprise Drive, Suite 1A  
Rocky Hill, CT 06067  
Attn: Malcolm Beeler

Project: Southwater Pump Station - Greenwich, CT  
Project #: 60158736

<u>Laboratory ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Date Sampled</u>	<u>Date Received</u>
SB46524-01	New Wall	Paint	29-Mar-12 13:30	03-Apr-12 15:30
SB46524-02	Basement Under Stairwell	Paint	29-Mar-12 13:53	03-Apr-12 15:30
SB46524-03	Piping	Paint	29-Mar-12 14:22	03-Apr-12 15:30
SB46524-04	Basement Ceiling	Paint	29-Mar-12 14:51	03-Apr-12 15:30

I attest that the information contained within the report has been reviewed for accuracy and checked against the quality control requirements for each method. These results relate only to the sample(s) as received.  
All applicable NELAC requirements have been met.

Massachusetts # M-MA138/MA1110  
Connecticut # PH-0777  
Florida # E87600/E87936  
Maine # MA138  
New Hampshire # 2538  
New Jersey # MA011/MA012  
New York # 11393/11840  
Pennsylvania # 68-04426/68-02924  
Rhode Island # 98  
USDA # S-51435



Authorized by:

Nicole Leja  
Laboratory Director

Spectrum Analytical holds certification in the State of New York for the analytes as indicated with an X in the "Cert." column within this report. Please note that the State of New York does not offer certification for all analytes.  
Please note that this report contains 10 pages of analytical data plus Chain of Custody document(s). When the Laboratory Report is indicated as revised, this report supersedes any previously dated reports for the laboratory ID(s) referenced above. Where this report identifies subcontracted analyses, copies of the subcontractor's test report are available upon request. This report may not be reproduced, except in full, without written approval from Spectrum Analytical, Inc.

*Spectrum Analytical, Inc. is a NELAC accredited laboratory organization and meets NELAC testing standards. Use of the NELAC logo however does not insure that Spectrum is currently accredited for the specific method or analyte indicated. Please refer to our "Quality" web page at [www.spectrum-analytical.com](http://www.spectrum-analytical.com) for a full listing of our current certifications and fields of accreditation. States in which Spectrum Analytical, Inc. holds NELAC certification are New York, New Hampshire, New Jersey and Florida. All analytical work for Volatile Organic and Air analysis are transferred to and conducted at our 830 Silver Street location (NY-11840, FL-E87936 and NJ-MA012).*



## CASE NARRATIVE:

The samples were received 4.3 degrees Celsius, please refer to the Chain of Custody for details specific to temperature upon receipt. An infrared thermometer with a tolerance of +/- 1.0 degrees Celsius was used immediately upon receipt of the samples.

If a Matrix Spike (MS), Matrix Spike Duplicate (MSD) or Duplicate (DUP) was not requested on the Chain of Custody, method criteria may have been fulfilled with a source sample not of this Sample Delivery Group.

Required site-specific Matrix Spike/Matrix Spike Duplicate (MS/MSD) must be requested by the client and sufficient sample must be submitted for the additional analyses. Samples submitted with insufficient volume/weight will not be analyzed for site specific MS/MSD, however a batch MS/MSD may be analyzed from a non-site specific sample.

CTDEP has published a list of analytical methods which provides a series of recommended protocols for the acquisition, analysis and reporting of analytical data in support of decisions being made utilizing the Reasonable Confidence Protocol (RCP). "Reasonable Confidence" can be established only for those methods published by the CTDEP in the RCP guidelines. The compounds and/or elements reported were specifically requested by the client on the Chain of Custody and in some cases may not include the full analyte list as defined in the method. Regulatory limits may not be achieved if specific method and/or technique was not requested on the Chain of Custody.

The CTDEP RCP requests that "all non-detects and all results below the reporting limit are reported as ND (Not Detected at the Specified Reporting Limit)". All non-detects and all results below the reporting limit are reported as "<" (less than) the reporting limit in this report.

If no reporting limits were specified or referenced on the chain-of-custody the laboratory's practical quantitation limits were applied.

Tetrachloro-m-xylene is recommended as a surrogate by the CTDEP RCP for the following SW846 Methods 8081, 8082 and 8151. Spectrum Analytical, Inc. uses Tetrachloro-m-xylene as the Internal Standard for these methods and Dibromooctafluorobiphenyl as the surrogate.

For this work order, the reporting limits have not been referenced or specified.

**See below for any non-conformances and issues relating to quality control samples and/or sample analysis/matrix.**

### **SW846 8082A**

#### **Samples:**

SB46524-01                      *New Wall*

The concentration indicated for this analyte is an estimated value. This value is considered an estimate (CLP E-flag).

Aroclor-1254 [2C]

SB46524-01RE1                      *New Wall*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

The surrogate recovery for this sample is not available due to sample dilution required from high analyte concentration and/or matrix interference's.

4,4-DB-Octafluorobiphenyl (Sr)

4,4-DB-Octafluorobiphenyl (Sr) [2C]

Decachlorobiphenyl (Sr)

Decachlorobiphenyl (Sr) [2C]

SB46524-02                      *Basement Under Stairwell*

Sample dilution required for high concentration of target analytes to be within the instrument calibration range.

Sample Identification

New Wall  
SB46524-01

Client Project #  
60158736

Matrix  
Paint

Collection Date/Time  
29-Mar-12 13:30

Received  
03-Apr-12

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
---------	------------	--------	------	-------	------	-----	----------	-------------	----------	----------	---------	-------	-------

**Semivolatile Organic Compounds by GC**

Polychlorinated Biphenyls

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	< 209		µg/kg dry	209	105	1	SW846 8082A	06-Apr-12	10-Apr-12	IMR	1207878	X
11104-28-2	Aroclor-1221	< 209		µg/kg dry	209	189	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 209		µg/kg dry	209	134	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 209		µg/kg dry	209	123	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 209		µg/kg dry	209	103	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	362,000	E	µg/kg dry	209	88.8	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 209		µg/kg dry	209	80.2	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 209		µg/kg dry	209	195	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 209		µg/kg dry	209	65.7	1	"	"	"	"	"	X

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	80			30-150 %			"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	130			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	84			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	127			30-150 %			"	"	"	"	"	

Re-analysis of Polychlorinated Biphenyls

GS1

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	< 20900		µg/kg dry	20900	10500	100	SW846 8082A	06-Apr-12	12-Apr-12	IMR	1207878	X
11104-28-2	Aroclor-1221	< 20900		µg/kg dry	20900	18900	100	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 20900		µg/kg dry	20900	13400	100	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 20900		µg/kg dry	20900	12300	100	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 20900		µg/kg dry	20900	10300	100	"	"	"	"	"	X
11097-69-1	Aroclor-1254	382,000		µg/kg dry	20900	15400	100	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 20900		µg/kg dry	20900	8020	100	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 20900		µg/kg dry	20900	19500	100	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 20900		µg/kg dry	20900	6570	100	"	"	"	"	"	X

Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	0	S01		30-150 %			"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	0	S01		30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	0	S01		30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	0	S01		30-150 %			"	"	"	"	"	

**General Chemistry Parameters**

% Solids	99.2			%			1	SM2540 G Mod.	05-Apr-12	05-Apr-12	DT	1207710	
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*This laboratory report is not valid without an authorized signature on the cover page.*

## Sample Identification

## Piping

SB46524-03

## Client Project #

60158736

## Matrix

Paint

## Collection Date/Time

29-Mar-12 14:22

## Received

03-Apr-12

CAS No.	Analyte(s)	Result	Flag	Units	*RDL	MDL	Dilution	Method Ref.	Prepared	Analyzed	Analyst	Batch	Cert.
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## Semivolatile Organic Compounds by GC

## Polychlorinated Biphenyls

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	< 279		µg/kg dry	279	139	1	SW846 8082A	06-Apr-12	10-Apr-12	IMR	1207878	X
11104-28-2	Aroclor-1221	< 279		µg/kg dry	279	251	1	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 279		µg/kg dry	279	179	1	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 279		µg/kg dry	279	164	1	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 279		µg/kg dry	279	137	1	"	"	"	"	"	X
11097-69-1	Aroclor-1254	335,000	E	µg/kg dry	279	118	1	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 279		µg/kg dry	279	107	1	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 279		µg/kg dry	279	260	1	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 279		µg/kg dry	279	87.6	1	"	"	"	"	"	X

## Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	105			30-150 %			"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	95			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	3830	S02		30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	81			30-150 %			"	"	"	"	"	

## Re-analysis of Polychlorinated Biphenyls

GS1

Prepared by method SW846 3540C

12674-11-2	Aroclor-1016	< 2790		µg/kg dry	2790	1390	10	SW846 8082A	06-Apr-12	12-Apr-12	IMR	1207878	X
11104-28-2	Aroclor-1221	< 2790		µg/kg dry	2790	2510	10	"	"	"	"	"	X
11141-16-5	Aroclor-1232	< 2790		µg/kg dry	2790	1790	10	"	"	"	"	"	X
53469-21-9	Aroclor-1242	< 2790		µg/kg dry	2790	1640	10	"	"	"	"	"	X
12672-29-6	Aroclor-1248	< 2790		µg/kg dry	2790	1370	10	"	"	"	"	"	X
11097-69-1	Aroclor-1254	267,000		µg/kg dry	2790	2050	10	"	"	"	"	"	X
11096-82-5	Aroclor-1260	< 2790		µg/kg dry	2790	1070	10	"	"	"	"	"	X
37324-23-5	Aroclor-1262	< 2790		µg/kg dry	2790	2600	10	"	"	"	"	"	X
11100-14-4	Aroclor-1268	< 2790		µg/kg dry	2790	876	10	"	"	"	"	"	X

## Surrogate recoveries:

10386-84-2	4,4-DB-Octafluorobiphenyl (Sr)	105			30-150 %			"	"	"	"	"	
10386-84-2	4,4-DB-Octafluorobiphenyl (Sr) [2C]	95			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr)	140			30-150 %			"	"	"	"	"	
2051-24-3	Decachlorobiphenyl (Sr) [2C]	120			30-150 %			"	"	"	"	"	

## General Chemistry Parameters

% Solids	98.5	%					1	SM2540 G Mod.	05-Apr-12	05-Apr-12	DT	1207710	
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# Semivolatile Organic Compounds by GC - Quality Control

Analyte(s)	Result	Flag	Units	*RDL	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit
<b>Batch 1207878 - SW846 3540C</b>										
<u>Blank (1207878-BLK1)</u>					<u>Prepared: 06-Apr-12 Analyzed: 10-Apr-12</u>					
Aroclor-1016	< 20.0		µg/kg wet	20.0						
Aroclor-1016 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1221	< 20.0		µg/kg wet	20.0						
Aroclor-1221 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1232	< 20.0		µg/kg wet	20.0						
Aroclor-1232 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1242	< 20.0		µg/kg wet	20.0						
Aroclor-1242 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1248	< 20.0		µg/kg wet	20.0						
Aroclor-1248 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1254	< 20.0		µg/kg wet	20.0						
Aroclor-1254 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1260	< 20.0		µg/kg wet	20.0						
Aroclor-1260 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1262	< 20.0		µg/kg wet	20.0						
Aroclor-1262 [2C]	< 20.0		µg/kg wet	20.0						
Aroclor-1268	< 20.0		µg/kg wet	20.0						
Aroclor-1268 [2C]	< 20.0		µg/kg wet	20.0						
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	14.5		µg/kg wet		20.0		72	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	18.1		µg/kg wet		20.0		90	30-150		
Surrogate: Decachlorobiphenyl (Sr)	15.4		µg/kg wet		20.0		77	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	19.4		µg/kg wet		20.0		97	30-150		
<u>LCS (1207878-BS1)</u>					<u>Prepared: 06-Apr-12 Analyzed: 10-Apr-12</u>					
Aroclor-1016	203		µg/kg wet	20.0	250		81	50-140		
Aroclor-1016 [2C]	208		µg/kg wet	20.0	250		83	50-140		
Aroclor-1260	210		µg/kg wet	20.0	250		84	50-140		
Aroclor-1260 [2C]	223		µg/kg wet	20.0	250		89	50-140		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	15.0		µg/kg wet		20.0		75	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	16.9		µg/kg wet		20.0		84	30-150		
Surrogate: Decachlorobiphenyl (Sr)	17.3		µg/kg wet		20.0		86	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	20.8		µg/kg wet		20.0		104	30-150		
<u>LCS Dup (1207878-BSD1)</u>					<u>Prepared: 06-Apr-12 Analyzed: 10-Apr-12</u>					
Aroclor-1016	218		µg/kg wet	20.0	250		87	50-140	7	30
Aroclor-1016 [2C]	219		µg/kg wet	20.0	250		87	50-140	5	30
Aroclor-1260	211		µg/kg wet	20.0	250		84	50-140	0.5	30
Aroclor-1260 [2C]	228		µg/kg wet	20.0	250		91	50-140	2	30
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr)	14.8		µg/kg wet		20.0		74	30-150		
Surrogate: 4,4-DB-Octafluorobiphenyl (Sr) [2C]	16.5		µg/kg wet		20.0		82	30-150		
Surrogate: Decachlorobiphenyl (Sr)	17.7		µg/kg wet		20.0		88	30-150		
Surrogate: Decachlorobiphenyl (Sr) [2C]	21.6		µg/kg wet		20.0		108	30-150		

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# CHAIN OF CUSTODY RECORD

Page 1 of 1

Special Handling:

- ☒ Standard TAT - 7 to 10 business days
- ☐ Rush TAT - Due Needed
- All TATs subject to laboratory approval
- Min. 24-hour notification needed for rushes
- Samples disposed of after 60 days unless otherwise instructed

Report To: Michael Becker  
See Envelope Re. Site #14  
Reedy Hill, CT 06267

Telephone #: 860-263-0806  
Project Mgr.: Gary Steward

Invoice To: Same  
P.O. No.: 6058736 RGN

Project No.: 6058736  
Site Name: Southwater Pump Station  
Location: Greenwich State CT  
Sample(s): MFR

1 Na<sub>2</sub>SO<sub>3</sub> 2 HCl 3 H<sub>2</sub>SO<sub>4</sub> 4 HNO<sub>3</sub> 5 NaOH 6 Ascorbic Acid 7 Cl<sub>2</sub> H<sub>2</sub>O  
8 NaHSO<sub>3</sub> 9 FeCl<sub>3</sub> 10-  
DW Drinking Water GW Groundwater WW Wastewater  
O-Oil SW Surface Water SO Soil SI Sludge A-Air  
X1 Pervy X2 NV

G Grab C Composite

Lab Id.	Sample Id.	Date	Time	Type	Matrix	# of VOA Vials	# of Amber Glass	# of Clear Glass	# of Plastic	Containers	Preservative code below	Analysis:	QA/QC Reporting Notes
4652401	New Unit	5/29/12	1330	G	X1								
	02 Recovery Under		1353	G	X1								
	34m well			G	X1								
	03 Piping		1422	G	X1								
	04 Recovery clog		1451	G	X1								

Relinquished by: Michael A. Becker  
Received by: T. Becker  
Date: 5/31/12 Time: 2:05 Temp: 4.3  
Date: 5/31/12 Time: 1330 Temp: 4.3

☒ EDD Form  
☐ E-mail to mysew@acem.com

☐ Ambient ☐ Hot ☐ Refrigerated ☐ Ice temp ☐ Freezer temp

QA/QC Reporting Notes:  
☐ Provide MA DEP ACP-AI Report  
☒ Provide IDPH RCP Report  
QA/QC Reporting Level  
☒ Standard ☐ No QC  
Other:  
State specific reporting standards:





# Lead & Metals Chain of Custody

## EMSL Order Number (Lab Use Only):

011005226

Corporate -  
Westmont/Cinnaminson, NJ  
200 Route 130 North  
Cinnaminson, NJ 08077  
PHONE: 1-800-220-3675  
FAX: (856) 786-5974

Company: Malcolm Pirnie, Inc.		EMSL-Bill to: <input checked="" type="checkbox"/> Same <input type="checkbox"/> Different If Bill to is Different note instructions in Comments** Third Party Billing requires written authorization from third party		
Street: 27-01 Queens Plaza North Suite 800				
City/State/Zip: Long Island City, NY 11101				
Report To (Name): Toby Ledbetter		Fax: 718-446-4020		
Telephone: 718-397-2386		Email Address: jledbetter@pirnie.com		
Project Name/Number: 6869001				
Please Provide Results: Email		Purchase Order:		
		State Samples Taken: CT		
Turnaround Time (TAT) Options* - Please Check				
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 6 Hour <input type="checkbox"/> 24 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input checked="" type="checkbox"/> 2 Week				
*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide				
Matrix	Method	Instrument	Reporting Limit	Check
Chips <input type="checkbox"/> mg/cm <sup>2</sup> <input checked="" type="checkbox"/> % by wt.	SW846-7000B/7420 or AOAC 974.02	Flame Atomic Absorption	0.01%	<input checked="" type="checkbox"/>
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	<input type="checkbox"/>
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	<input type="checkbox"/>
	NIOSH 7300 modified	ICP-AES	0.5 µg/filter	<input type="checkbox"/>
Wipe* <input type="checkbox"/> ASTM <input type="checkbox"/> non ASTM *If no box is checked, non-ASTM Wipe is assumed	SW846-7000B/7420	Flame Atomic Absorption	10 µg/wipe	<input type="checkbox"/>
	SW846-6010B or C	ICP-AES	0.5 µg/wipe	<input type="checkbox"/>
TCLP	SW846-1311/7420/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	SW846-6010B or C	ICP-AES	0.1 mg/L (ppm)	<input type="checkbox"/>
Soil	SW846-7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)	<input type="checkbox"/>
	SW846-7421	Graphite Furnace AA	0.3 mg/kg (ppm)	<input type="checkbox"/>
	SW846-6010B or C	ICP-AES	1 mg/kg (ppm)	<input type="checkbox"/>
Wastewater	SM3111B or SW846-7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)	<input type="checkbox"/>
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
	SW846-6010B or C	ICP-AES	1 mg/kg (ppm)	<input type="checkbox"/>
Drinking Water	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	<input type="checkbox"/>
Other: <u>PCBs</u>		Preservation Method (Water):		
Name of Sampler: <u>Toby Ledbetter</u>		Signature of Sampler: <u>Toby Ledbetter</u>		
Sample #	Location	Volume/Area	Date/Time Sampled	
1 SW-PC-01	yellow paint on block wall		10/3/10	
Client Sample #'s: <u>SW-PC-01</u>		Total # of Samples: <u>1</u>		
Relinquished (Client): <u>Toby Ledbetter</u>	Date: <u>10/6/10</u>	Time: <u></u>		
Received (Lab): <u>[Signature]</u>	Date: <u>10/7/10</u>	Time: <u>11:00A</u>		
Comments/Special Instructions: Please analyze samples for total lead and total PCBs				

SPLIT IN  
C HEM  
10/7/10 -EZ



Attn: **Toby Ledbetter**  
**Malcolm Pirnie**  
**27-01 Queens Plaza North**  
**Suite 800**  
**Long Island City, NY 11101**

Customer ID: MALC26  
Customer PO:  
Received: 10/07/10 11:00 AM  
EMSL Order: 011005226

Fax: (718) 446-4020

Phone (718) 397-2386

Project: 6869001

### Analytical Results

*Client Sample Description* SW-PC-01  
Yellow paint on block wall

*Collected:* 10/3/2010 *Lab ID:* 0001

<i>Method</i>	<i>Parameter</i>	<i>Concentration</i>	<i>Reporting Limit</i>	<i>Units</i>	<i>Analysis Date</i>	<i>Analyst</i>
3540C/8082	Aroclor-1016	ND	1300	mg/Kg	10/16/2010	edayres
3540C/8082	Aroclor-1221	ND	1300	mg/Kg	10/16/2010	edayres
3540C/8082	Aroclor-1232	ND	1300	mg/Kg	10/16/2010	edayres
3540C/8082	Aroclor-1242	ND	1300	mg/Kg	10/16/2010	edayres
3540C/8082	Aroclor-1248	ND	1300	mg/Kg	10/16/2010	edayres
3540C/8082	Aroclor-1254	20000	1300	mg/Kg	10/16/2010	edayres
3540C/8082	Aroclor-1260	ND	1300	mg/Kg	10/16/2010	edayres
3540C/8082	Aroclor-1262	ND	1300	mg/Kg	10/16/2010	edayres
3540C/8082	Aroclor-1268	ND	1300	mg/Kg	10/16/2010	edayres

**Definitions:**

ND - indicates that the analyte was not detected at the reporting limit

## **Appendix B**

### **Written Certification Required Under §761.61(a)(3)(E)**

AMY J. SIEBERT, P.E.  
COMMISSIONER

DAVID P. THOMPSON, P.E.  
DEPUTY COMMISSIONER



Building Inspection  
Building Maintenance  
Engineering  
Highways  
Recycling  
Sewers  
Solid Waste Disposal  
Traffic Engineering

**DEPARTMENT OF PUBLIC WORKS**

July 5, 2012

Kimberly N. Tisa, Region 1 PCB Coordinator  
United States Environmental Protection Agency  
5 Post Office Square OSRR07-2  
Boston, MA 02109-3912


**Subject: Written Certification as per §761.61(a)(3)(E)  
Building Materials Remedial Action Plan  
South Water Pump Station  
142 South Water Street, Greenwich, CT 06830**

Dear Ms. Tisa:

I certify that all sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the South Water Pump Station site, are on file at the AECOM offices located at 500 Enterprise Drive, Suite 1A, Rocky Hill, CT 06067, and are available for EPA inspection.

If you have any questions, comments, or concerns you may contact Malcolm Beeler via phone at 860-263-5806 or via email at [malcolm.beeler@aecom.com](mailto:malcolm.beeler@aecom.com).

Very Truly Yours,

  
Amy J. Siebert, PE  
Commissioner

cc: Gary Trombly, CT DEEP  
Rich Feminella, Town of Greenwich  
Gary Simard, AECOM

M:\dpw\Swr\correspondence\epa\Standard Certification Letter South Water Station.docx

Town Hall, 101 Field Point Road, Greenwich, Connecticut 06836-2540

PHONE: (203) 622-7740

FAX NO. (203) 622-3716